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<b>F</b>		<b>Concorde</b> , 747, C5-A test pilots report on their experiences during initial test flights. JL69-7-30	694570	<b>Fuels</b> see: <b>Diesel Fuels</b> <b>Gasoline</b> <b>Hydrocarbon Fuels</b> <b>Jet Fuels</b>	
<b>Failure</b> For a proper prediction of the probability of failure, an estimate must be made of both mean values and scatter in stress and strength. JL69-4-38	694541	Loads on 15 types of aircraft are closer to design limit despite large design envelope than are loads on large transport aircraft. JL69-8-31	694580	<b>Gaskets</b> Proper bolting system design can greatly extend gasket life—and its overall spring constant is one of the most important factors to consider. JL69-3-64	694535
Sudden compositional change of coolant causes elastomeric seal to swell or shrink, which if elastomer has hardened may cause seal to fail. JL69-7-37	694572	<b>Flywheels</b> Weight is saved when flywheel energy storage unit is used to help aircraft secondary power systems meet peak power demands. JL69-1-64	694512	Sealing, erosion, crush, and extrusion resistance tests, and differential thermal analysis are supplementing the standard tests for evaluating gasket materials. JL69-8-59	694587
<b>Fasteners</b> see also: <b>Bolts</b> <b>Rivets</b> Titanium fastener and use of interference-fit systems cut C-5A structure weight 4%. JL69-4-54	694544	<b>Friction</b> Coating male portion of splines with nylon lowers friction level reducing galling, extending life. JL69-2-50	694521	<b>Gasoline</b> Aromatic compounds in fuels identified as main precursors of engine varnish. JL69-7-52	694577
<b>Fatigue</b> Fatigue life and notch toughness of spring steel much improved by modified ausforming process. JL69-3-44	694529	<b>Friction Materials</b> Propose standard fixture for testing friction materials. JL69-12-62	694627	<b>Gasoline Engines</b> European cars reveal variety of design changes and several entirely new models. JL69-2-20	694514
Electronics help speed General Motors' engine mount design test and shift Ford's fatigue tests from track to the laboratory. JL69-4-46	694542	<b>Fuel Additives</b> Combustor design changes offer most promise in reducing smoke from gas turbine engines. Fuel additives have yet to prove effective. JL69-6-60	694566	New MAN FM combustion system allows knockless burning of any gasoline from highest octane to poorest grade. Advantages include low sfc, peak pressures, and exhaust emissions. JL69-6-36	694561
<b>Filament Reinforced Composites</b> Boron-epoxy composite material saves wing box extension weight on F-111B aircraft. JL69-5-42	694551	Aromatic compounds in fuels identified as main precursors of engine varnish. JL69-7-52	694577	1970 passenger-car engineering highlights. JL69-10-35	694598
Future of V/STOL aircraft may depend on use of filamentary composites. JL69-10-64	694604	Minor changes allow diesel trucks with critical fuel systems to operate satisfactorily on flow-improved high cloud point fuels, at temperatures down to -30 F. JL69-8-48	694584	<b>Glass</b> Lower laceration danger from chemically strengthened windshield. JL69-10-70	694606
<b>Filtering/Filters/</b> Minor changes allow diesel trucks with critical fuel systems to operate satisfactorily on flow-improved high cloud point fuels, at temperatures down to -30 F. JL69-8-48	694584	<b>Fuel Control</b> Booster engines can be used on commercial transports to increase thrust during take-off and initial climb. This limited duty cycle means some parts can be shorter or simpler. JL69-7-42	694574	<b>Graphic Methods</b> Effectiveness and speed of computer program for airfoil analysis and design are enhanced with computer graphics. JL69-2-44	694519
<b>Fire Prevention</b> Nitrogen inerting of aircraft fuel tanks protects against fires and explosions. JL69-6-49	694563	<b>Fuel Systems</b> see also: <b>Carburetors/Carburetion/</b> Nitrogen inerting of aircraft fuel tanks protects against fires and explosions. JL69-6-49	694563	<b>H</b>	
Postcrash fire studies show need for rear-seat fire wall and rupture-proof fuel tank. JL69-7-18	694567	Nitrogen inerting of aircraft fuel tanks protects against fires and explosions. JL69-6-49	694563	<b>Heat Resistant Materials</b> see: <b>Refractory Metals</b>	
<b>Flammability</b> Nitrogen inerting of aircraft fuel tanks protects against fires and explosions. JL69-6-49	694563				

<b>Heat Treatment</b>	
Transition temperature of MN-MO armor steel tempered in tempered martensite embrittling range is lowered by warm working, thus improving in toughness.	
JL69-3-60	694534
Quenching bath of liquid nitrogen produces almost negligible distortion in sheet aluminum parts, whereas they must be straightened after water quenching.	
JL69-7-25	694568
<b>Helicopters</b>	
V/STOL's could service city-center to city-center routes and provide shuttle service between the airport and town.	
JL69-2-34	694515
Crashworthiness and tolerance to damage from small arms fire can be designed into wing aircraft.	
JL69-12-28	694623
<b>Hoses</b>	
Sudden compositional change of coolant causes elastomeric seal to swell or shrink, which if elastomer has hardened may cause seal to fail.	
JL69-7-37	694572
<b>Hot Forming</b>	
Fatigue life and notch toughness of spring steel much improved by modified ausforming process.	
JL69-3-44	694529
<b>Human Engineering</b>	
SAE ellipse is repositioned by simple model so that eyes may be positioned even with head turned.	
JL69-5-39	694550
<b>Human Injuries</b>	
Energy-absorbing steering column reduces injury rate but drivers now impact new areas of vehicle interior.	
JL69-5-60	694556
Safer instrument panel designs are producing fewer leg injuries in vehicle accidents.	
JL69-7-32	694571
New laboratory tools aid study of localized head and facial trauma during vehicle impact.	
JL69-11-22	694608
<b>Hydraulic Systems</b>	
New vibration-absorbing suspension eliminates rough ride of tractor-scrapers, thus reducing both operator and machine structural fatigue.	
JL69-9-34	694588
<b>Hydrocarbon Fuels</b>	
Many variables can aid formation of deposits in empty jet fuel tanks.	
JL69-11-50	694616
<b>I</b>	
<b>Ignition Systems</b>	
see also:	
<b>Spark Plugs</b>	
New NSU double bank rotary engine has new dual ignition system and cast-iron abex seals.	
JL69-4-30	694539
<b>Impact Sleds</b>	
Wayne horizontal accelerator mechanism (WHAM II) accelerates or decelerates sled or modified automobile on its own wheels up to 60G, to simulate crashes.	
JL69-12-43	694634
<b>Impact Tests</b>	
Two restraint systems designed solely for children are described. Rules for use of seat belt with growing child given.	
JL69-1-53	694508
Tests show vehicle passengers have best chance of survival with inflatable air bag restraint system.	
JL69-1-58	694510
Transition temperature of MN-MO armor steel tempered in tempered martensite embrittling range is lowered by warm working, thus improving in toughness.	
JL69-3-60	694534
Postcrash fire studies show need for rear-seat fire wall and rupture-proof fuel tank.	
JL69-7-18	694567
National Bureau of Standards automobile safety research has disclosed how differently anthropomorphic dummies respond from humans in tests of seat belts and harnesses.	
JL69-7-48	694576
<b>Hoses</b>	
Chimpanzees survive deceleration of 150 G with aid of contoured synthetic foam restraint.	
JL69-9-62	694595
Lower laceration danger from chemically strengthened windshield.	
JL69-10-70	694606
<b>Inspection</b>	
see also:	
<b>Quality Control</b>	
<b>Radiography</b>	
Computers are being applied to dimensional measurement in production of discrete parts.	
JL69-11-32	694611
<b>Instrumentation</b>	
Use of constant-volume sampler to weigh exhaust emissions poses variety of problems.	
JL69-12-34	694624
<b>Instruments</b>	
see:	
<b>Smokemeters</b>	
<b>Viscometers</b>	
<b>J</b>	
<b>Jet Aircraft Operation</b>	
Emphasis is on maintainability when repairing jet engines on the wing.	
JL69-1-51	694507
Concorde, 747, C5-A test pilots report on their experiences during initial test flights.	
JL69-7-30	694570
<b>Jet Fuels</b>	
Combustor design changes offer most promise in reducing smoke from gas turbine engines. Fuel additives have yet to prove effective.	
JL69-6-60	694566
Many variables can aid formation of deposits in empty jet fuel tanks.	
JL69-11-50	694616
<b>L</b>	
<b>Lasers</b>	
Laser gyro eliminates all moving parts to form ideal system.	
JL69-2-52	694522
<b>Lead Alloys</b>	
General Motors aluminum-babbitt bearings offer economy over heavy-duty units without sacrifice of performance.	
JL69-6-34	694560
<b>Life Support Systems</b>	
No drying of gas stream needed when Gat-O-Sorb is used in regenerable carbon dioxide control systems for spacecraft.	
JL69-1-32	694502
<b>Lighting</b>	
European cars reveal variety of design changes and several entirely new models.	
JL69-2-20	694514
Intra-crew alerting device gives emergency evacuation signal on flight deck and at forward and rear hostess jump seats.	
JL69-3-54	694532
<b>Lubricants</b>	
see also:	
<b>Automatic Transmission Fluids</b>	
<b>Crankcase Oils</b>	
<b>Oil Additives</b>	
<b>Turbine Lubricants</b>	
Three mechanical tests predict viscosity losses of oils in service more accurately than sonic method.	
JL69-5-36	694549
<b>Lubrication</b>	
see:	
<b>Spacecraft Lubrication</b>	
<b>Lubrication Systems</b>	
Olympus 593 lubrication system is specially designed for very high-temperature operation.	
JL69-5-52	694553
<b>M</b>	
<b>Maintainability</b>	
Emphasis is on maintainability when repairing jet engines on the wing.	
JL69-1-51	694507
<b>Management</b>	
New tools revealed for engineering management use.	
JL69-10-57	694602
Nontechnical executives are sometimes responsible for directing technical people. One such executive tells how and why such a combination can work successfully.	
JL69-11-30	694610
Ideal technical-managerial mix exists for all supervisor levels.	
JL69-11-40	694613
Reorientation is basic for an engineer seeking success in management.	
JL69-12-36	694630
<b>Manifolds</b>	
Small cars emit less CO and HC when using duplex carburetion to distribute fuel more evenly.	
JL69-4-50	694543
<b>Manikins</b>	
National Bureau of Standards automobile safety research has disclosed how differently anthropomorphic dummies respond from humans in tests of seat belts and harnesses.	
JL69-7-48	694576

<b>Materials Testing</b> Laboratory simulator of the loading spectrum imposed by random road vibrations on an automotive part. JL69-11-42	694614	<b>Nondestructive Testing</b> see: <b>Radiography</b> <b>Ultrasonics</b>	
<b>Mathematical Analysis</b> Mathematical modeling approach suggested to assimilate data from vehicle safety research. JL69-7-40	694573		
<b>Metal Forming</b> see also: <b>Extrusion</b> <b>Hot Forming</b>			
Fatigue life and notch toughness of spring steel much improved by modified ausforming process. JL69-3-44	694529		
<b>Military Aircraft</b> Crashworthiness and tolerance to damage from small arms fire can be designed into wing aircraft. JL69-12-28	694623		
<b>Military Vehicles</b> Electrical system works as well as mechanical drive train in tracked personnel carrier. JL69-11-56	694617		
<b>Models</b> Mathematical model for predicting head motion in rear-end collisions shows effectiveness of yielding seatback if properly damped. JL69-12-24	694622		
<b>Moldings</b> Low fabrication and tooling costs make roto-molded plastics attractive for both short and long production runs in automotive industry. JL69-4-26	694538		
<b>Mounts</b> Electronics help speed General Motors' engine mount design test and shift Ford's fatigue tests from track to the laboratory. JL69-4-46	694542		
<b>Multifuel Engines</b> New MAN FM combustion system allows knockless burning of any gasoline from highest octane to poorest grade. Advantages include low sfc, peak pressures, and exhaust emissions. JL69-6-36	694561		
<b>N</b>			
<b>Navigation</b> Inertial navigator gives precise dependable navigation anywhere in the world. Flight tests show accuracy is sufficient. JL69-3-66	694536		
<b>Nickel Alloys</b> Elastic modulus and Poisson's ratio of sintered nickel steels depend on density alone. Heat treatment, alloy content and density all affect other mechanical properties. JL69-7-45	694575		
<b>Nitrogen</b> Many variables can aid formation of deposits in empty jet fuel tanks. JL69-11-50	694616		
<b>Noise</b> Stirling engine operates quietly with almost no smoke and odor and with little exhaust emission. JL69-1-40	694504		
Math quiets rotating machines. JL69-10-53	694599		
		<b>O</b>	
<b>Odors</b> Stirling engine operates quietly with almost no smoke and odor and with little exhaust emission. JL69-1-40	694504		
<b>Oil Additives</b> Three mechanical tests predict viscosity losses of oils in service more accurately than sonic method. JL69-5-36	694549		
		<b>P</b>	
<b>Packaging</b> Rigid seat with 28 in. high seatback protects occupant in rearend collisions at impact speeds over 30 mph. JL69-4-20	694537		
SAE eyellipse is repositioned by simple model so that eyes may be positioned even with head turned. JL69-5-39	694550		
Four computer programs design and evaluate inside and outside rear view mirrors. Possible obstructions are considered. JL69-6-42	694562		
<b>Passenger Car Design</b> Safer instrument panel designs are producing fewer leg injuries in vehicle accidents. JL69-7-32	694571		
What automobiles might be like in the year 2000. JL69-7-63	694579		
1970 passenger-car engineering highlights. JL69-10-35	694598		
<b>Passenger Car Performance</b> Method outlined for improving car handling behavior without affecting handling response or damping characteristics of car. JL69-6-54	694565		
<b>Pistons/Piston Rings</b> Diesel-engine piston rings show high sensitivity to contaminated fuel. JL69-10-54	694600		
New piston ring coatings applied by plasma. JL69-12-50	694635		
<b>Plastics</b> Plastics to have expanded role in auto exteriors. JL69-1-67	694513		
Low fabrication and tooling costs make roto-molded plastics attractive for both short and long production runs in automotive industry. JL69-4-26	694538		
Plastic battery cases with thinner walls and partitions leave more room for plates and acid—to improve battery electrical performance. JL69-9-52	694592		
Chimpanzees survive deceleration of 150 G with aid of contoured synthetic foam restraint. JL69-9-62	694595		
<b>Porous Materials</b> see: <b>Powder Metallurgy/Powder Metals</b>			
		<b>Q</b>	
<b>Quality Control</b> 1970 passenger-car engineering highlights. JL69-10-35	694598		
		<b>R</b>	
<b>Radioactive Tracers</b> Diesel-engine piston rings show high sensitivity to contaminated fuel. JL69-10-54	694600		
<b>Radiography</b> Difficulties in inspecting beryllium parts by ultrasonic and radiographic techniques are being overcome with improved techniques and equipment. JL69-11-27	694609		

<b>Radioisotopes</b> see also:	
<b>Radioactive Tracers</b>	
<b>Rear View Mirrors</b>	
Four computer programs design and evaluate inside and outside rear view mirrors. Possible obstructions are considered.	
JL69-6-42	694562
Recent test data on plane and curved rear view mirrors, developed at the University of Michigan, was discussed at a meeting of the Driver Vision and Rear Vision Subcommittees.	
JL69-11-48	694615
<b>Rear Viewing Systems</b>	
Rear-view periscope having cylindrical lens combined with a cylindrical mirror is a practical device for giving unobstructed vision.	
JL69-9-42	694590
<b>Refractory Metals</b>	
New piston ring coatings applied by plasma.	
JL69-12-50	694635
<b>Regulations</b>	
Used car safety standards to deal with parts which deteriorate.	
JL69-3-43	694528
Aesthetic diesel smoke levels in both acceleration and lug down are set to begin in January 1970.	
JL69-4-58	694546
Government and public now have larger role in shaping automobile industry programs. Future success depends on how well industry steers its course in this new climate.	
JL69-5-56	694554
<b>Reliability</b>	
For a proper prediction of the probability of failure, an estimate must be made of both mean values and scatter in stress and strength.	
JL69-4-38	694510
<b>Research</b> see also:	
<b>Crash Research</b>	
Fuel-engine research is well suited for investigations in universities.	
JL69-3-51	694530
<b>Ride Evaluation</b>	
Dynamic spring rate of rolling tire differs from that of nonrolling tire tests on new apparatus shown.	
JL69-9-58	694594
<b>Rings</b> see also:	
<b>Pistons/Piston Rings/</b>	
<b>Rivets</b>	
Titanium fastener and use of interference-fit systems cut C-5A structure weight 4%.	
JL69-4-54	694544
<b>Roads</b>	
Two methods of measuring dynamic pavement loading by heavy trucks are developed.	
JL69-11-60	694619
Procedures developed to measure wet skid resistance of vehicle-tire-road system.	
JL69-12-58	694632
<b>Rotor Blades</b>	
Downwash of V/STOL aircraft depends on gross weight rather than disc loading velocities which can reach 40 knots.	
JL69-4-56	694545
<b>Runways</b>	
Encouraging results from flight tests prompted construction of a test track to investigate air jets for braking on wet pavements. A single, inclined nozzle produced the best traction.	
JL69-8-54	694585
<b>S</b>	
<b>Safety</b> see also:	
<b>Aircraft Safety</b>	
<b>Antiskid Devices</b>	
<b>Crash Research</b>	
<b>Driver Behavior</b>	
<b>Human Injuries</b>	
<b>Impact Sleds</b>	
<b>Safety Belts</b>	
<b>Traffic Safety</b>	
<b>Safety Belts</b>	
Two restraint systems designed solely for children are described. Rules for use of seat belt with growing child given.	
JL69-1-53	694508
National Bureau of Standards automobile safety research has disclosed how differently anthropomorphic dummies respond from humans in tests of seat belts and harnesses.	
JL69-7-48	694576
Suitable restraint devices and proper design can make many light plane crashes survivable.	
JL69-8-56	694586
<b>Safety Devices</b>	
Tests show vehicle passengers have best chance of survival with inflatable air bag restraint system.	
JL69-1-58	694510
Rigid seat with 28 in. high seatback protects occupant in rearend collisions at impact speeds over 30 mph.	
JL69-4-20	694537
Energy-absorbing steering column reduces injury rate but drivers now impact new areas of vehicle interior.	
JL69-5-60	694556
Chimpanzees survive deceleration of 150 G with aid of contoured synthetic foam restraint.	
JL69-9-62	694595
Airborne cooperative time/frequency collision avoidance systems have been specified by airlines. Prototypes begin tests in 1969.	
JL69-10-56	694601
Vacuum-electronic device provides rear-wheel antilocking during sudden brake applications.	
JL69-11-63	694620
<b>Seals</b> see also:	
<b>Gaskets</b>	
<b>Pistons/Piston Rings/</b>	
New NSU double bank rotary engine has new dual ignition system and cast-iron abex seals.	
JL69-4-30	694539
Sudden compositional change of coolant causes elastomeric seal to swell or shrink, which if elastomer has hardened may cause seal to fail.	
JL69-7-37	694572
Sealing, erosion, crush, and extrusion resistance tests, and differential thermal analysis are supplementing the standard tests for evaluating gasket materials.	
JL69-8-59	694587
<b>Seats</b>	
Rigid seat with 28 in. high seatback protects occupant in rearend collisions at impact speeds over 30 mph.	
JL69-4-20	694537
SAE ellipse is repositioned by simple model so that eyes may be positioned even with head turned.	
JL69-5-39	694550
Mathematical model for predicting head motion in rear-end collisions shows effectiveness of yielding seatback if properly damped.	
JL69-12-24	694622
<b>Service Life</b>	
Laboratory simulator of the loading spectrum imposed by random road vibrations on an automotive part.	
JL69-11-42	694614
<b>Shafts/Power/</b> see also:	
<b>Axes</b>	
<b>Driveshafts</b>	
Coating male portion of splines with nylon lowers friction level reducing galling, extending life.	
JL69-2-50	694521
<b>Short Haul Aircraft</b>	
V/STOL's could service city-center to city-center routes and provide shuttle service between the airport and town.	
JL69-2-34	694515
<b>Simulation</b> see also:	
<b>Computer Simulation</b>	
1970 passenger-car engineering highlights.	
JL69-10-35	694598
<b>Simulators</b>	
Laboratory simulator of the loading spectrum imposed by random road vibrations on an automotive part.	
JL69-11-42	694614
Wayne horizontal accelerator mechanism (WHAM II) accelerates or decelerates sled or modified automobile on its own wheels up to 60G, to simulate crashes.	
JL69-12-43	694634
<b>Small Engines</b>	
Description and function of two emission control devices designed especially for needs of small displacement engine.	
JL69-8-40	694582
<b>Smokemeters</b>	
Aesthetic diesel smoke levels in both acceleration and lug down are set to begin in January 1970.	
JL69-4-58	694546
Diesel smokemeter correlations established in steady state.	
JL69-7-59	694578
<b>Soil Mechanics</b>	
New techniques are being studied to increase productivity of farm and earthmoving tractors.	
JL69-3-56	694533
<b>Spacecraft Lubrication</b>	
Integrated approach needed to solve lubrication problems of space vehicles.	
JL69-3-40	694527
<b>Spark Ignition Engines</b>	
Sonic throttling intake valves give lean part-load spark-ignition engine operation.	
JL69-1-45	694505

By burning a lean mixture ratio which supplies equal amounts of CO and NO it's possible to eliminate both gases from engine exhaust. JL69-7-28	694569	<b>Streamlining</b> If automobile body is split into zones and each zone rated for aerodynamic character, the vehicle's automobile drag coefficient can be predicted within 7%. JL69-6-52	694564	Laboratory simulator of the loading spectrum imposed by random road vibrations on an automotive part. JL69-11-42	694614
<b>Spark Plugs</b> New MAN FM combustion system allows knockless burning of any gasoline from highest octane to poorest grade. Advantages include low sfc, peak pressures, and exhaust emissions. JL69-6-36	694561	<b>Stresses</b> For a proper prediction of the probability of failure, an estimate must be made of both mean values and scatter in stress and strength. JL69-4-38	694541	Two methods of measuring dynamic pavement loading by heavy trucks are developed. JL69-11-60	694619
<b>Springs</b> Fatigue life and notch toughness of spring steel much improved by modified ausforming process. JL69-3-44	694529	Sealing, erosion, crush, and extrusion resistance tests, and differential thermal analysis are supplementing the standard tests for evaluating gasket materials. JL69-8-59	694587	Propose standard fixture for testing friction materials. JL69-12-62	694627
<b>Stainless Steels</b> Many variables can aid formation of deposits in empty jet fuel tanks. JL69-11-50	694616	<b>Stress Measurement</b> Laboratory simulator of the loading spectrum imposed by random road vibrations on an automotive part. JL69-11-42	694614	<b>Tests</b> see also: <b>Engine Tests</b> <b>Impact Tests</b> <b>Wind Tunnel Testing</b> New oil viscosity determination may lick hot engine winter starting problems. JL69-1-35	694503
<b>Standardization</b> Used car safety standards to deal with parts which deteriorate. JL69-3-43	694528	<b>Structures</b> see: <b>Aircraft Structures</b> <b>Sulfur</b> Many variables can aid formation of deposits in empty jet fuel tanks. JL69-11-50	694616	Rigid seat with 28 in. high seatback protects occupant in rear end collisions at impact speeds over 30 mph. JL69-4-20	694537
Aesthetic diesel smoke levels in both acceleration and lug down are set to begin in January 1970. JL69-4-58	694546	<b>Supercharging/Superchargers/</b> see also: <b>Turbocharging/Turbochargers/</b> <b>Supersonic Transports</b> Concorde, 747, CS-A test pilots report on their experiences during initial test flights. JL69-7-30	694570	Electronics help speed General Motors' engine mount design test and shift Ford's fatigue test from track to the laboratory. JL69-4-46	694542
<b>Statistics</b> see: <b>Probability Theory</b> <b>Quality Control</b>		<b>Surfaces</b> Procedures developed to measure wet skid resistance of vehicle-tire-road system. JL69-12-58	694632	Pendulum test is simple, accurate technique for evaluating thrust valve performance. JL69-5-58	694555
<b>Steels</b> see also: <b>Alloy Steels</b> <b>Stainless Steels</b>		<b>Suspension Systems</b> European cars reveal variety of design changes and several entirely new models. JL69-2-20	694514	Sealing, erosion, crush, and extrusion resistance tests, and differential thermal analysis are supplementing the standard tests for evaluating gasket materials. JL69-8-59	694587
<b>Steering</b> Lane change maneuver test measures extent to which car-driver performance suffers as tire pressure balance is changed. JL69-1-56	694509	New vibration-absorbing suspension eliminates rough ride of tractor-scrapers, thus reducing both operator and machine structural fatigue. JL69-9-34	694588	In turboprop engine development the spectrometric oil analysis procedure can uncover design weaknesses. Applied in service, trouble can be spotted before it becomes serious. JL69-9-55	694593
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